

Using Digital Images to Engage Young Learners

By Judy Van Scoter

Subject: Digital images and imaging tools, primary education, early literacy

Audience: Teachers, teacher educators, curriculum specialists

Grade Level: K–2 (Ages 5–7)

Technology: Digital cameras, handheld digital microscopes, drawing and presentation software

Standards: *NETS•S 3; NETS•T II* (<http://www.iste.org/standards/>)

We expand our focus on digital images in the curriculum by exploring how to use digital images and imaging tools in PK–2 classrooms.

Take a look into an active classroom where students use a variety of resources for learning. Some students are finishing pattern block constructions. After marking the line of symmetry with yarn, they record the accomplishment with a digital camera. A group of students gathers around a digital microscope investigating a pine cone, predicting what they will see in the magnified images. Another group plans a slide show they will make to welcome next year's class. They are making a list of people in the school they need to photograph and introduce. Students are using a mix of new and traditional tools in meaningful ways to explore, create, and develop skills.

The power of using digital cameras and images with young students lies in their ability to engage students. The images stimulate curiosity and provide rich opportunities for language and literacy. They provide feedback tools, allowing students to see and reflect on activities as they happen and offering new ways to record and document learning. Further, working with digital images is motivating, empowering, and fun.

Encouraging Curiosity

Students are naturally curious about the world around them—watch as they stack blocks to see how high they can go or dig holes to look for worms. Digital cameras and microscopes encourage students to look closely at the world around them and investigate from another perspective. They let students follow their curiosity and explore, engaging the senses as well as the brain. A handheld digital microscope that displays images on a computer screen, such as the Pro-Scope (<http://www.proscope.com>), can be used by even very young students. They gather, fascinated by magnified strands of hair or the texture of a T-shirt under the microscope. Hear the exclamations, “Look

at this!” “It looks like fuzzy worms!” Viewing the same image on the screen at the same time allows students to have a common experience and gain a common understanding of everyday phenomena.

Photographs can offer a new perspective, taking the object or scene out of its usual context. Let students take pictures of the same object from different angles or a close-up of only part of the object. The unexpected change in emphasis promotes wondering and curiosity, leading to new understanding.

The learning centers in many classrooms offer students choices. Incorporate a computer or camera into a center to add new possibilities. In a lesson on patterns, first graders at a math center are asked to make patterns with paper chains, with pattern blocks or bears, or using Kid Pix stamps. One student loves elephants and bases his patterns on them. Others create theirs with objects and photograph the pattern. Because this task is open-ended and the students are given choices, all feel challenged and are capable of succeeding.

Supporting Language and Literacy

Literacy is a major focus in the early grades, and digital images support language development. Young students frequently tell stories to accompany pictures they create. They can combine their images—photographs, images drawn or painted on screen, and digitized artwork—with their written or spoken language in a variety of ways. They can digitally record themselves speaking with a program such as Kid Pix or HyperStudio, record themselves onto audio- or videotape, or they can type their text to be read aloud by the speech synthesizer on the computer. They can create electronic slide shows in a program such as Kid Pix, HyperStudio, or PowerPoint, including speech and text to meet the needs of their peers

at all ability levels. Students practice the language and structure of storytelling, and reading the words to record them and in the final product reinforces reading skills. Students are motivated by their own creations and what they have to say about them and are more likely to return to their stories and reap the benefit of repetition to reinforce learning.

Class books are a favorite project in primary classrooms. Each student creates a page with an illustration and a sentence or short paragraph on a topic related to classroom activities. You can easily create the class book as an electronic slide show and as a book for your students to hold and enjoy. For example, a second-grade class bases its ABC book on words descriptive of the school. Each student identifies a word for the assigned letter and writes a sentence, then takes a digital photo to illustrate the idea. Students create a slide in Kid Pix with the letter, word, sentence, and photo, then record the narration. Students are engaged by the real-life scenes because they created the slide show and because the environment shown in it is so personal to them.

Another class makes an alphabet book in the style of *Q is for Duck: An Alphabet Guessing Game* by Marcia McClintock Folsom and Mary Elting. Each student creates a Kid Pix slide with a picture and a sentence for that letter, then records himself or herself reading the words. The final project is shown in school and a videotape of the slide show is sent home for the parents. Students in the class have a range of abilities and needs. Technology allows some students with special needs to participate in activities they wouldn't be able to participate in without technology; therefore, the presentation shows a class full of successful students participating fully.

Images enhance text documents and add interest for both the author and the audience. Word processing

and authoring programs encourage the development of ideas and content by making the process of writing and revising less difficult. The software allows the writer to focus on the content rather than letter formation and fine motor skills. Adding visual communication, the images, provides another way to convey meaning. For example, a picture shows the scene where a story takes place, and a photo of a Lego block construction accompanies sequential instructions on how to build it.

Any language project combining words and pictures presents a wonderful opportunity for students to create an image with meaning for them. Students must think about what they want to convey and decide how best to represent their thoughts. Although most programs include graphics or clip art, with images, as with writing, it is better to encourage personal expression. Whether drawn, painted, or photographed, a student-created image is personal and reflects the student's effort and creativity.

Take your students on a walking tour to look at brightly colored autumn leaves or new spring flowers, snapping digital photos along the way. Back in the classroom, let students create captions and record their voices describing what is happening in the pictures. The slide show they create is a wonderful, technology-rich way to share the day with students and parents, and the printed pages give students an easy way to revisit their experience, thereby keeping it fresh. Students love to revisit the trip through the photos; because they can easily go back and revise, they frequently add to their initial responses. This repetition is important for moving knowledge into short- and then long-term memory, especially at this age. If students are engaged in a project enough to revisit it, then they get the educational benefits of this repetition again and again.

When using a digital microscope, students discuss what they are seeing. This is an opportunity to build on the experience, a stimulus for further learning. When you are studying plants, guide students to examine a leaf for its texture and veins. Tell them the proper terms when they attempt to describe what they see. Students who speak a variety of languages at home share the experience, and all are introduced to vocabulary in the context of exploration. Later have them write about the experience or work with a partner to record similarities and differences between the object and its magnified image.

Providing Feedback and Documenting Learning

Early childhood classrooms have many learning activities—science explorations, constructions, events—that may not include paper-and-pencil records. Here the digital camera can play an important role. Photos give students a way to show their learning, and looking forward to taking the picture can be a motivator to complete the task. The photos are viewable immediately, and they offer students and teachers a quick and effective way to document learning and “save the moment” of an activity in progress. And, collecting these images of student work in a portfolio encourages reflection as it shows student growth. Students can see and hear how their skills have grown over time, reinforcing their sense of accomplishment.

Have students photograph examples they find of concepts they are learning (e.g., two boots standing together, three swings on the playground, geometric shapes in the real world). You’ll hear students using math words, “taller, rectangle, triangle” as they take the pictures and when they look at the photos later. Collect the photos into a number or shapes book in both electronic and

print formats. This is easily done using a word processor or software that creates electronic slide shows.

You can print digital photos and send them home the same day. If your students’ parents have e-mail or Web access at home, you can e-mail photos to them or post photos on a Web site for them to visit. This immediate documenting of experiences stimulates dialogue among the students and their families and provides a visual reminder that can be a springboard for further conversation and writing. For example, the Portland, Oregon, Public Schools’ Head Start serves students of diverse cultures and languages. Teachers frequently send home photos of zoo visits or open houses to enhance communication between school and parents, as well as between parents and child. They intentionally omit captions so that students and families can talk about the pictures in their home language. Students benefit from opportunities to use language for a variety of purposes. Conversations about the photos reinforce both the learning from the activity and their native language, an important background for those for whom English is a second language.

Now that digital cameras are so common and easy to use, some teachers use them to digitize student art to use in a document or to include in a portfolio. The original work goes home, and the teacher retains a record of progress.

Making Tools Available

Whether using centers or integrating technology into a project for the whole class, it is good to begin simply. Try one new strategy or tool and work with it until you and the students are comfortable using it. Then find ways that it enhances the lessons. For instance, teach students to use the camera and let them record the steps in a project. A fall pumpkin project provides an early opportu-

nity. Counting seeds, measuring the pumpkins, and the other parts of the project provide lots of opportunities for photos to show as well as tell about their work. Students can add a written or recorded explanation, give detailed information, and create stories about their pumpkins. Looking back at the project in the spring, students and families will see how far the student has come from early in the school year.

Technology is not a teacher: its use cannot and should not replace interactions with responsive adults. Recent research on the brain and the science of learning highlights the importance of multisensory experiences, especially during early years. Digital images can play a useful role to support active learning. Digital cameras and microscopes encourage children to look closely at the world around them and investigate from another perspective. They let children follow their curiosity and explore, engaging the senses as well as the brain. Hands-on experiential learning is recognized as an effective strategy for English language learners, and it is a useful strategy with all students.

Educators of young students understand these students’ need to experience life through their senses and see the value of tools that make this possible. These tools can enhance good teaching and learning and, in the hands of creative and skilled teachers, offer a wealth of new opportunities. When used thoughtfully, digital images can play a useful and beneficial part of this early childhood development.



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came from using technology in the classroom led to her focus on technology integration to support learning.